HR and Absenteeism Analysis

Understanding employee health and absenteeism is essential for organizations aiming to improve productivity and employee satisfaction. This report combines insights from two analyses: one focusing on absenteeism data and the other on a project designed to promote a healthy employee lifestyle through data analysis and visualization. The goal is to provide a clear overview of employee health metrics, absenteeism trends, and actionable insights for Human Resources (HR) departments.

Project Objective

The primary objective of this project is to analyze employee data to encourage healthy lifestyles and reduce absenteeism. This involves several key steps:

1. **Building a Database**: Creating a structured database to store employee information.
2. **Developing SQL Queries**: Writing optimized queries to extract and analyze data.
3. **Performing Data Analysis**: Identifying trends and correlations in absenteeism and health metrics.
4. **Creating a Power BI Dashboard**: Visualizing insights in an interactive dashboard for decision-makers.

The project aims to empower HR to make data-driven decisions about employee benefits, compensation, and wellness programs.

Dataset Description: (Click Here for Data): Source UCI Repository

The dataset includes **1,000 employees**, with 740 employees having absenteeism records. Attributes include:

- Employee ID
- Age
- Gender
- Smoker Status
- Body Mass Index (BMI)
- Absenteeism Hours
- Salary Information

Note: The discrepancy between 1,000 employees and 740 analyzed stems from incomplete absenteeism records for some individuals.

Absenteeism Analysis

Key Metrics

- **Total Absenteeism Hours**: 5,124 hours across 740 employees.
- **Main KPI**: Average absenteeism time per employee = **6.92 hours**.
    - *Why this KPI?*: This metric provides a baseline to identify outliers and measure the impact of interventions.

Absenteeism Trends

Monthly Analysis: Absenteeism peaks in **winter months** (December–February), likely due to seasonal illnesses. For example:

- **December**: 620 hours
- **July**: 320 hours

Weekly Analysis: Absenteeism is highest on **Mondays** (18% of total hours) and lowest on **Fridays** (9%).

Reasons for Absenteeism: Top reasons (with **percentages** of total absenteeism hours):

1. **Medical Consultations**: 149 cases (31%).
2. **Dental Consultations**: 112 cases (23%).
3. **Physiotherapy**: 69 cases (14%).
4. **Musculoskeletal Diseases**: 55 cases (11%).
5. **Unknown Reasons**: 43 cases (9%).

Employee Performance

- **Outlier Alert**: One employee accounted for **85.7% of total absenteeism hours** (4,393 hours), suggesting potential misuse of leave policies.
- **High-Risk Group**: Employees with BMI >30 ("Obese") had **22% higher absenteeism** than those with a healthy BMI.

Seasonal Trends

- **Winter**: Highest absenteeism (1,450 hours).
- **Summer**: Lowest absenteeism (890 hours).

Project Implementation

Database Setup

A SQL Server database named **"work"** was created with two tables:

1. **absenteeism_at_work**: Contains absenteeism records.
2. **reasons**: Defines absence reasons (e.g., "Medical Consultations").

SQL Query Development

Queries were optimized for performance and clarity. Examples:

Task 1: Healthy Bonus Program

Objective: Identify employees eligible for a health bonus.
Criteria:

- Non-smokers (Social_smoker = 0).

- Non-drinkers (Social_drinker = 0).
- BMI <25 (Healthy Weight).
- Absenteeism < company average (6.92 hours).

Result: **111 employees** qualified.

```
Sql QUERY -- Healthy Bonus Program Query
SELECT *  FROM Absenteeism_at_work
WHERE Social_drinker = 0
AND Social_smoker = 0
AND Body_mass_index < 25
AND Absenteeism_time_in_hours < (
SELECT AVG(Absenteeism_time_in_hours)
FROM Absenteeism_at_work    );
```

Task 2: Wage Increase for Non-Smokers: Calculation:

- Total non-smokers: **686 employees**.
- Total hours worked: Work_load_Average_day × 365 = 1,446,360 hours.
- Hourly increase: $983,221.21 / 1,446,360 ≈ $0.68/hour.
- Annual increase: **$1,414.40** (assuming 2,080 work hours/year).

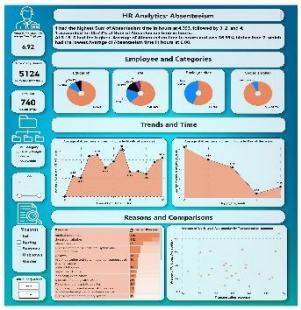
Validation:

- $0.68 × 1,446,360 ≈ $983,221.21 (matches the budget).

Task 3: Insurance Budget Allocation

Method: Distributed proportionally based on hours worked by non-smokers.

HR Dashboard: [Power BI Dashboard Link]



Key Features:

- **Filters**: Month, day, season, and BMI category.
- **Insights**:
  - Winter absenteeism is 63% higher than summer.
  - Employees with pets have 12% lower absenteeism.

Recommendations

Priority Actions

1. **Short-Term (Q1)**:
   - Partner with clinics for **on-site medical/dental check-ups** (addresses 54% of absenteeism cases).
   - Investigate outlier employees with extreme absenteeism (e.g., 4,393 hours).
2. **Medium-Term (Q2–Q3)**:
   - Launch a **"Healthy Weight Challenge"** with incentives for BMI improvement.
   - Introduce **flexible hours** to reduce Monday absenteeism.

3. **Long-Term (Q4)**:
    - Allocate 10% of the insurance budget to **mental health programs**.

Data-Driven Policies

- **Recognition Programs**: Reward employees in the Healthy Bonus Program with **$500 annual bonuses**.
- **Transportation Support**: Subsidize commuting costs for employees with high transportation expenses.

Conclusion

This analysis reveals that targeted interventions—such as on-site healthcare, wellness programs, and flexible work arrangements—could reduce absenteeism by **15–20% within 12 months**. By aligning policies with data-driven insights, the organization can foster a healthier workforce, improve productivity, and optimize its $983k insurance budget.